

ABSTRACT OF THE DISCLOSURE

Lamp based spike annealing was improved to address the aggressive requirements of <100nm Ultra Shallow Junction (USJ) technologies. Improvements focused on enhancing cool down rates, and thereby improving spike sharpness. Boron ion implanted substrates with varying ion-implanted energy and dose were then annealed to characterize the improvements in spike annealing. A greater than 10 % improvement in sheet resistance and junction depth was realized on substrates that were annealed with the improved spike profile. The improved spike anneal had the same comparable uniformity to the standard spike anneal.